Original Article

Malignant Eyelid Tumors in Northeast Thailand: A Ten-Year Review at Srinagarind Hospital, Khon Kaen

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Objective: To determine the frequency and clinical characteristics of patients with malignant eyelid tumors at Srinagarind Hospital between January 2000 and January 2017.

Materials and Methods: This retrospective descriptive analysis was conducted by review medical record. A computerized retrieval system was used to identify all patients whose surgical pathologic results diagnosed as malignant eyelid tumors between January 2000 and January 2017. The patient's medical records, including the patient's gender, age of presentation, and underlying disease were collected. Tumor locations, histopathologic results, treatments, and time of recurrences were recorded.

Results: One hundred twenty-six patients that had one tumor each, were studied. There were more malignant tumors in female. The median age of presentation was 67.0 years, whereas the mean age was 65.6 years (range 28 to 96 years). Tumors developed most commonly on the lower eyelid (n = 56; 44.4%) and less on the upper eyelid (n = 40; 31.7%). Of the 126 malignant tumors, 75 were basal cell carcinomas (59.5%, 95% CI 50.9 to 68.1), 25 were squamous cell carcinomas (19.8%), and 15 were sebaceous gland carcinomas (11.9%). The clinical accuracy in predicting eyelid malignancy was 65.9%. Only 26.2% of patients had more than a one-year follow-up and no patient had more than five years of follow-up.

Conclusion: Basal cell carcinoma was the most common malignant eyelid tumor in Northeast Thailand. The frequency of sebaceous gland carcinoma in the present region was significantly more than the previous studies in a Caucasian population.

Keywords: Eye, Eyelid, Malignant, Tumor

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Malignant eyelid tumor is the second most common tumor of the eye and ocular adnexa[1-3]. Eyelid tumors include a variety of cell types that can be benign or malignant. Eyelid cancers mainly include basal cell carcinoma, squamous cell carcinoma, malignant melanoma, and sebaceous cell carcinoma[4]. Each type of malignancy may present in various findings and natural courses.

Although only 10% to 20% of eyelid tumors will actually be malignant[4-7], they can destroy normal eyelid margin structure and occasionally visual function. It can be challenging for the general ophthalmologist to accurately identify malignancy to bring about histopathologic examination for the diagnosis.

Most studies have revealed that most common malignant eyelid tumor is basal cell carcinoma[1,6-12]. In the northern region of Thailand, basal cell carcinoma is the most common among malignant eyelid tumor[18]. However, squamous cell carcinoma[2] and sebaceous cell carcinoma[5,14,15] are most common malignant eyelid tumor found in Asian population.

Data on epidemiology of the tumor of the eyelid among Thai population are limited, especially in Northeast Thailand. In the present study, the authors reviewed the frequency and clinical characteristics of patients with malignant eyelid tumors in Srinagarind Hospital between January 2000 and January 2017. In addition, the authors compared the results of the present study with those of various reports about the occurrence of malignant eyelid tumors in other part of the world.

Materials and Methods

The study protocol was approved by the Khon Kaen University Ethics Committee for Human Research. A computerized retrieval system was used to identify all patients whose surgical pathologic results showed a diagnosis with malignant eyelid tumors between January 2000 and January 2017 in Srinagarind Hospital, Khon Kaen. One hundred twenty-six patients were included in the present study. The patient's medical records, including the patient's gender, age of

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presentation, and underlying disease were collected. Tumor locations, histopathologic results, treatments, and time of recurrences were recorded.

Table 1. Distributions of age and sex in patients with malignant eyelid tumor

Type of malignancy	Male	Female	Mean age (year)
Basal cell CA	26	49	65.9
Squamous cell CA	16	9	65.6
Sebaceous cell CA	3	12	67.9
Malignant melanoma	1	2	84.0
Others	3	5	50.75
Total	49	77	65.6

CA = carcinoma

Table 2. Distributions of malignant eyelid tumor

Type of malignancy	Frequency (%)
Basal cell CA	75 (59.5)
Squamous cell CA	25 (19.8)
Sebaceous cell CA	15 (11.9)
Malignant melanoma	3 (2.4)
Others	8 (6.3)
Total	126 (100)

CA = carcinoma

Table 3. Location of 126 malignant eyelid tumors

Type of malignancy	Location of tumor					Total
	Medial canthus	Upper eyelid	Lateral canthus	Lower eyelid	Diffuse	
Squamous cell CA	1	12	1	9	2	25
Basal cell CA	15	10	4	44	2	75
Sebaceous gland CA	0	11	1	3	0	15
Malignant melanoma	0	2	0	0	1	3
Others	0	5	2	0	1	8
Total	16	40	8	56	6	126

CA = carcinoma

Table 4. The accuracy of clinical diagnosis

Type of malignancy	Accuracy		Total
	True	False	
Squamous cell CA	9	16	25
Basal cell CA	59	16	75
Sebaceous gland CA	9	6	15
Malignant melanoma	1	2	3
Others	5	3	8
Total	83	43	126

CA = carcinoma

Results

Between January 2000 and January 2017, 126 patients (126 lesions) with histopathologic confirmation were included in the present study. All patients were Thai and included 49 males (38.9%) and 77 females (61.1%). There was a predominance of basal cell carcinoma in female (26 males, 49 females, 1:1.9). The median age of presentation was 67.0 years (range 28 to 96), whereas the mean age was 65.6 years; 65.96 years for basal cell carcinoma and 65.56 years for squamous cell carcinoma. The distribution of age and sex is outlined in Table 1.

Of the 126 malignant tumors, 75 were basal cell carcinomas (59.5%, 95% CI 50.9% to 68.1%), 25 were squamous cell carcinomas (19.8%), and 15 were sebaceous gland carcinomas (11.9%) (Table 2).

The locations of the lesions, overall, and by histopathologic diagnosis, are detailed in Table 3. Tumors developed most commonly on the lower eyelid (n = 56; 44.4%) and on the upper eyelid (n = 40; 31.7%), whereas basal cell carcinoma (n = 44; 78.6%) was the most common tumor on the lower eyelid.

The clinical accuracy in predicting eyelid malignancy was only 65.9% (Table 4). Only 26.2% of patients had more than one year of follow-up and no patient had more than five years of follow-up.

Discussion

Basal cell carcinoma is the most common malignant eyelid tumor worldwide. Previous studies in Caucasian population have shown that 80% to 90% of all eyelid cancers were basal cell carcinoma[6,10,15,17] (Table 5). However, in numerous studies in Asia, basal cell carcinoma was found in lower proportion

Table 5. Histopathologic patterns of eyelid cancers in Caucasian population

Study	Region	Period	n	Histology (%)
Cook and Bartley, 1999[10]	Minnesota, USA	1976 to 1990	174	BCC (90.8) SCC (8.6) MM (0.6)
Ni et al., 1982[15]	USA	-	1,543	BCC (92.5) SCC (4.6) SGC (1.5)
Weiner et al., 1986[17]	Australia	-	475	BCC (88.8) SCC (7.4) SGC (3.8)
Deprez and Uffer, 2009[6]	Switzerland	1989 to 2007	880	BCC (86) SCC (7) SGC (3)

BCC = basal cell carcinoma; MM = malignant melanoma; SCC = squamous cell carcinoma; SGC = sebaceous gland carcinoma

Table 6. Histopathologic patterns of eyelid cancers in Asian population

Study	Region	Period	n	Histology (%)
Obata et al., 2005[7]	Japan	1990 to 2004	23	BCC (39) SGC (39) Lymphoma (17)
Ni et al., 1982[15]	Shanghai, China	-	512	BCC (47) SGC (32.7) SCC (10)
Lee et al., 1999[9]	Singapore	1968 to 1995	325	BCC (84) SGC (10.2) SCC (3.4)
Sihota et al., 1996[14]	India	1982 to 1992	178	SGC (32.6) BCC (29.8) SCC (28.1)
Wang et al., 2003[12]	Taiwan	1980 to 2000	127	BCC (62.2) SGC (23.6) SCC (8.7)
Pornpanich and Chindasub, 2005[5]	Thailand (Siriraj)	2000 to 2004	32	SGC (40.6) BCC (37.5) MM (9.37)
Na Pombejara et al., 2009[1]	Thailand (Chula)	2000 to 2005	25	BCC (17.8) SCC (5.6) SGC (4.4)
Nithithanaphat et al., 2014[18]	Thailand (Chiang Mai)	2007 to 2013	316	BCC (18) SCC (6.3) SGC (4.4)
The present study, 2017	Thailand (Srinagarind)	2000 to 2017	126	BCC (59.5) SCC (19.8) SGC (11.9)

BCC = basal cell carcinoma; MM = malignant melanoma; SCC = squamous cell carcinoma; SGC = sebaceous gland carcinoma

(Table 6). In the present study, basal cell carcinoma was the most common eyelid malignancy (59.9%), followed by squamous cell carcinoma (19.8%), and sebaceous cell carcinoma (11.9%). These findings were comparable to the reports from the previous studies in Thailand and Taiwan[1,12,18].

In Caucasian population, sebaceous cell carcinoma is very rare. In contrast, the studies of Sihota et al[14] and Pornpanich and Chindasub (Thailand)[5] showed that sebaceous cell carcinoma was the most common eyelid malignancy. Sebaceous cell carcinoma appeared to be much more common in the Asian population in the present study. Genetics and racial predisposition may play a role in this contrast[15]. Gonzalez-Fernandez et al proposed that the differences in ocular infection rates with human papilloma virus between continents might be a possible explanation for the different frequencies of sebaceous gland carcinoma[16].

All malignant lesions were most common in the lower eyelid. This result was comparable to the reports from previous studies[5,10,12,18]. The results of the present study confirm previous reports that basal cell carcinoma occurred more frequently in the lower eyelid followed by medial canthus, upper eyelid, and lateral canthus. In the present study, most sebaceous cell carcinomas were found on upper eyelid. This has been attributed to the greater number of meibomian glands in the upper eyelid.

In the present study, the clinical accuracy in predicting eyelid malignancy was 65.9%. However, limitation in this aspect was the inclusion criteria that retrieved only the patients whose surgical pathologic results were diagnosed as malignant eyelid tumors. Therefore, the inaccuracy was that only the type of malignancy was misdiagnosed. In examining an actual malignant lesion, it is more important for the ophthalmologist to suspect malignancy than to identify the particular type of malignancy.

Only 26.2% of patients had more than one year of follow-up and no patients had more than five years of follow-up. Because of the short follow-up period and that many patients were lost to follow-up, the present study could not record the rate of recurrence.

Conclusion

Malignant eyelid tumors in Northeast Thailand develop predominantly in elderly on the lower eyelid. Basal cell carcinoma was the most common malignant eyelid tumor. The frequency of sebaceous gland carcinoma in the present region was significantly more than the previous studies in Caucasian population.

What is already known on this topic?

Most studies have revealed that the most common malignant eyelid tumor is basal cell carcinoma. However, squamous cell carcinoma and sebaceous cell carcinoma are the most common malignant eyelid tumors found in Asian population.

What this study adds?

Basal cell carcinoma was the most common malignant eyelid tumor in the Northeast, Thailand. The frequency of sebaceous gland carcinoma in the present study region was significantly more than the previous studies in Caucasian population.

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Potential conflicts of interest

The authors declare no conflicts of interest.

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